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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,110	05/14/2007	Giuseppe Leonardo Quarini	M03B300 PCT	7085

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The BOC Group, Inc.
575 MOUNTAIN AVENUE
MURRAY HILL, NJ 07974-2082

EXAMINER

PETTITT, JOHN F

ART UNIT	PAPER NUMBER
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3744

MAIL DATE	DELIVERY MODE
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05/10/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/579,110	Applicant(s) QUARINI, GIUSEPPE LEONARDO	
	Examiner John F. Pettitt	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11/7/2007, 8/18/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Claims 4-5 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 04/14/2011. The traversal is on the ground(s) that the species share common features. This is not found persuasive because the common features are known in the art and therefore are not special technical features and thus the requirement is still deemed proper and is therefore made FINAL.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: Freezing Edible liquids with Liquid Cryogenic Sprays

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 6-7, 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee (US 5737928). In regard to claims 1, 2, 6-7, 9, Lee teaches a method of cooling a feed liquid (process fluid 12, column 1, line 54) comprising forming at least one sheet (interpreted as a body or layer) of flowing particles (particulates, column 1, line 57) of

Art Unit: 3744

the feed liquid (12) and directing cryogen (Liquid Nitrogen) at the particles (particulate) from both sides of the sheet (see figure 1, column 3, line 8). It is noted that Lee teaches that the forming of the particles comprises atomizing the feed liquid (column 3, line 5).

Claims 1-3, 6, 7, 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Brooker (US 6531173). In regard to claims 1-3, 6, 7, 9, 12, 13, Brooker teaches a method of cooling a feed liquid (liquid fat, column 4, line 63) comprising forming at least one sheet (interpreted as a body or layer; layer of liquid fat in figure) of flowing particles (droplets, column 4, line 67) of the feed liquid (liquid fat) and directing cryogen (liquid nitrogen, column 2, lines 40-45) at the particles (droplets) from both sides of the sheet (LN2 is sprayed at front and back of layer shown in figure). It is noted that the forming of the sheet comprises atomizing the feed liquid (column 5, line 5) and comprises providing a compressed gas (column 4, line 64) to the feed liquid (liquid fat). In regard to claim 10, Brooker teaches that the particles have an average size less than 50 micrometers (column 1, lines 40-45; column 3, lines 40-45). In regard to claim 11, Brooker teaches that a cooling rate is at least 1000 K/s (column 2, lines 30-35).

Claims 1-3, 6, 8, 9, 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Knodel (US 4838039). In regard to claims 1-3, 6, 9, 12, Knodel teaches a method of cooling a feed liquid (through 72; column 3, line 39, note the liquid is water and is edible) comprising forming at least one sheet (interpreted as a body of layer, see layer of liquid in figure 1) of flowing particles (droplets forming crystals, column 3, line 51) of

Art Unit: 3744

the feed liquid (through 72) and directing cryogen (refrigerant, interpreted as a fluid that may have a low temperature) at the particles (droplets) from both sides of the sheet (refrigerant is directed through 56, 58, 60, 62). It is noted that the feed liquid (liquid through 72) is atomized (formed into droplets). It is noted that the atomizing of the feed liquid comprises providing a compressed gas to the feed liquid (providing the refrigerant provides is performed by compressing the refrigerant gas and providing that fluid to the liquid through 72). In regard to claims 6, 8, Knodel teaches cooling the particles (droplets) with the cryogen (refrigerant), forming a compressed gas (refrigerant after compressor 146) from vapor (refrigerant vapor) evolved by liquefied gas (interpreted as a gas that may be liquefied; see refrigerant vapor that is liquefied) during the cooling the particles (during the cooling of the droplets and the crystallization thereof - column 3, line 54, there is vapor formed - column 3, line 51) and atomizing the feed liquid (through 72) with the compressed gas (refrigerant that has gone through compressor 146).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Pettitt whose telephone number is 571-272-0771. The examiner can normally be reached on M-F 8a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3744

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John F Pettitt /
Examiner, Art Unit 3744

/Cheryl J. Tyler/
Supervisory Patent Examiner, Art
Unit 3744

JFP III
May 3, 2011